

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

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7 8 9  
FACILITY STATUS (1) 5 (G) (28) % POWER (0) (0) (0) (29) OTHER STATUS (30) NA (A) (31) DISCOVERY DESCRIPTION (32) Operator Observation (36) LOCATION OF RELEASE (36) NA  
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50  
ACTIVITY CONTENT RELEASED OF RELEASE AMOUNT OF ACTIVITY (35) NA  
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50  
PERSONNEL EXPOSURES NUMBER TYPE DESCRIPTION (39) NA  
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50  
PERSONNEL INJURIES NUMBER DESCRIPTION (41) NA  
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50  
LOSS OF OR DAMAGE TO FACILITY TYPE DESCRIPTION (43) NA  
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50  
PUBLICITY ISSUED DESCRIPTION (45) NA  
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50  
NAME OF PREPARER R. B. Starkey, Jr. PHONE: (803) 383-4524

SUPPLEMENTAL INFORMATION  
FOR  
LER 80-04

1. Cause Description and Analysis

On March 16, 1980, Unit No. 2 was in hot shutdown with the primary system at 350 psig and 235°F, the shutdown rods were at 228 steps, and the plant was in the RHR recirculation mode proceeding to cold shutdown (<200°F). At that time the Safety Injection pumps were racked out as per normal plant operating procedures while in the RHR recirculation mode. At 0144 hours an automatic overcurrent trip of the MCC-5 main power transfer switch resulted in the loss of power to all MCC-5 and MCC-10 loads. Most of the MCC-5 and MCC-10 loads were not required to be operable due to the plant being in hot shutdown, less than 350°F and in the RHR recirculation mode. All RHR valves on MCC-5 were already in the proper position for continuous recirculation and loss of power to these valves did not affect the ability to continue the RHR recirculation process. The remaining safeguards equipment whose inoperability constituted a limited condition of operation are listed in Table 1 along with the sections of the Technical Specifications which allowed them to be out of service.

The loss of power lasted sixteen (16) minutes to all loads (with the exception of Instrument Bus 1, which was shifted to an alternate power supply two (2) minutes after power was lost) during which time a reactor trip occurred and all shutdown rods tripped in. At the end of the 16 minutes, the power had been restored to all MCC-5 and MCC-10 loads.

At 0243 on March 16, 1980, the Shift Foreman notified the NRC of the event by the direct line telephone. This notification was made due to the amount of equipment involved and since the insertion of the shutdown rods occurred.

The MCC-5 trip was a result of an overcurrent trip of the recently installed MCC-5 main power transfer switch. The modification to the MCC-5 power supply consisted of replacing an existing knife switch with a pair of kirk-key interlocked Square-D K-600 breakers. The K-600 breakers were intended to provide a method of switching power sources to MCC-5 while under load and were not intended to be used as overcurrent protection devices. Due to this fact, the requirement for specifying the proper overcurrent trip settings for the K-600 breakers was inadvertently omitted and the breakers were shipped and installed using standard factory settings. The overcurrent protection is provided by the existing main and emergency Westinghouse DB-50 power breakers located in 480V Bus E1 and 480V Bus 3. The K-600 breakers were installed and operated for approximately eight months with overcurrent settings adjusted at the supplier's factory without any trips occurring. However, on March 16, 1980, while Unit No. 2 was in the process of cooling down for the first time since the installation of the transfer switches, an apparent overcurrent trip of unknown origin occurred in the transfer switch. Further investigation revealed that the factory set overcurrent settings on the K-600 breakers were substantially lower than those on the DB-50 breakers:

1. Cause Description and Analysis (Continued)

	<u>D-600 (Square-D)</u>	<u>DB-50 (Westinghouse)</u>
Instantaneous Setting	6000 Amps	15000 Amps
Short Time Setting	2400 Amps	3200 Amps
Long Time Setting	600 Amps	800 Amps

Therefore, it is believed that, due to the low overcurrent settings, the MCC-5 transfer switch tripped on a power transient which normally would not have tripped the main power breaker. Due to the redundancy of plant safeguards equipment, the fact that the plant was in hot shutdown condition and just 35°F from cold shutdown condition, this event did not jeopardize the safety and health of the general public. This constitutes a reportable occurrence in accordance with Technical Specification 6.9.2.b.2.

2. Corrective Action

The initial corrective action involved re-establishing the power to MCC-5 and all associated loads. The overcurrent settings of the MCC-5 power transfer switches were then readjusted to the following values:

Instantaneous Setting	6000 Amps to 9000 Amps
Short Time Setting	2400 Amps to 6000 Amps
Long Time Setting	600 Amps to 960 Amps
Delay Band Setting	Intermediate to Maximum

While the instantaneous setting is still below that of the DB-50 breakers, the maximum instantaneous current (barring a direct short) for MCC-5 is about 4400 Amps. Therefore, there is a sufficient safety margin in the new setting to prevent spurious trips on the instantaneous mode. The remaining overcurrent trip adjustments should ensure that the MCC-5 transfer switches will not perform the unintended function of overcurrent isolation devices and therefore should preclude reoccurrences of this type of event.

3. Corrective Action To Prevent Further Occurrence

Plant personnel normally involved with specifying electrical equipment for plant modifications will review this report in an effort to ensure that all new transfer switches and adjustable breakers added due to plant modifications have the proper overcurrent settings prior to placing them in operation.

Table 1 - Equipment rendered inoperable by the MCC-5 trip whose inoperability constitutes a limited condition of operation as permitted by Technical Specifications.

<u>Equipment</u>	<u>Technical Specification Section</u>
1. Boric Acid Transfer Pump "A"	3.2.5
2. Constant Voltage Transformer-Instrument Bus 1 (Containment Spray Pressure Transmitters)	3.5.3
3. Accumulator Discharge Valve 865 A	3.3.1.3
4. Accumulator Discharge Valve 865 C	3.3.1.3
5. Service Water Booster Pump "A"	3.3.4.3

NOTE: Certain safeguards components required to maintain safety injection flowpath as required by Technical Specification Section 3.3.1.3 were inoperable (e.g., valves inoperable, safety injection pumps racked out) due to existing plant conditions (valves inoperable due to interlocks with RHR valves, safety injection pumps racked out during the RHR recirculation mode) as required by normal plant operating procedures. This, therefore, did not result in a degraded mode of operation when the safety injection loads on MCC-5 were rendered inoperable due to the transfer switch trip.